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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/679,538	09/30/2003	Stephen A. Payne	IL-11201	3980

7590

09/09/2005

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EXAMINER

NGUYEN, DUNG T

ART UNIT

PAPER NUMBER

2828

DATE MAILED: 09/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/679,538

Applicant(s)

PAYNE ET AL.

Examiner

Dung (Michael) T. Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-17, 21 and 23-26 is/are rejected.
- 7) ☒ Claim(s) 18-20 and 22 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fajardo et al. (2004/0151454) in view of Krupke (6643311).

With respect to claims 1-7, 9-13, 21, and 24-26, Fajardo disclose in para.0006 a length of a solid dielectric photonic band-gap fiber material having holes; a hollow core located within said length; and a gain medium located within said length.

Fajardo lack the gain medium comprises a mixture of at least one buffer gas He and an alkali atomic vapor K having a D1 transition, wherein said at least one buffer gas has the dual purpose of collisionally broadening a D2 transition of said alkali atomic vapor and collisionally transferring pump excitation from the upper level of said D2 transition to the upper level of said D1 transition at a rate larger than the radiative decay rate of either of these two levels and a laser diode for pumping the gain medium at 852nm.

Krupke teaches the gain medium comprises a mixture of at least one buffer gas He (see claim 15) and an alkali atomic vapor K (see claim 13) having a D1 transition, wherein said at least one buffer gas has the dual purpose of collisionally broadening a D2 transition of said alkali atomic vapor and collisionally transferring pump excitation from the upper level of said D2 transition to the upper level of said D1 transition at a rate larger than the radiative decay rate of

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either of these two levels (see claim 1) and a laser diode for pumping the gain medium at 852nm (see claims 7-8).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide Fajardo what is taught by Krupke in order to obtain a high power diode-pumped alkali vapor laser for metal cutting and welding (col.1 1.5-12).

With respect to claim 8, Fajardo disclose a cladding surrounding said length, wherein said cladding has a lower refractive index than said length (para.0037).

With respect to claim 16, Fajardo disclose holes are sealed (para.0031).

With respect to claim 17, Fajardo show in fig.2 said core is opened at each end of said length.

With respect to claims 14-15, Fajardo disclose all limitations of the claims except for the gain medium comprising an additional fine structure (2P_{3/2} - 2P_{1/2}) ethane quenching gas.

Krupke teaches the gain medium comprising an additional fine structure (2P_{3/2} - 2P_{1/2}) ethane quenching gas (col.4, 1.45-47 and claims 16).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide Fajardo what is taught by Krupke in order to excite the alkali atoms in the gain medium (col.5, 1.35-38).

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With respect to claim 23, Krupke discloses in table 2 the gain medium producing light at 770 nm.

Allowable Subject Matter

Claims 18-20 and 22 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

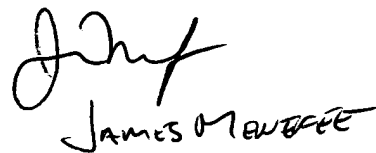
Communication Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dung (Michael) T Nguyen whose telephone number is (571) 272-1949. The examiner can normally be reached on 8:30 - 17:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Min Harvey can be reached on (571) 272-1835. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 306-3329.

Michael Dung Nguyen



James M. Lawrence